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HIGHWAY TRANSPORTATION BARRIERS IN 20 STATES

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PREFACE

The research and writing which are embodied in this report were directed and materially aided by Clem C. Linnenberg, Jr., of the Transportation and Facilities Branch, Marketing Research Division, Agricultural Marketing Service.

The analysis presented here (for 19 States and the District of Columbia) is the first part of a comprehensive study. Comparable information on the remaining 29 States will appear subsequently. It is planned that the study's third, and final, report will intensively analyze the economic and related consequences of the size and weight limits and of third-structure taxes, with the analysis to be based on field studies. The present analysis--of the limits and taxes themselves--was undertaken as necessary groundwork for the field studies of consequences; but this analysis is being made available at this time as a service to the various groups who are interested in getting immediately the type of data herein presented.

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SUMMARY

The movement of agricultural goods by truck has become an increasingly important aspect of agricultural marketing. Apart from any State control exercised over rates and operating authority--neither of which is covered here--the States regulate trucking of agricultural and other commodities in several ways. They impose restrictions on size and weight of vehicles; they establish rules regarding safe operation of vehicles and standards to be met by drivers; and they impose taxes on vehicles.

Safety regulations in their present form do not constitute a barrier to truck movement.

However, widely divergent tax loads and size and weight limits do constitute a barrier to highway transportation. This is especially true of size and weight limits, in that a truck operator must meet many different requirements in moving from State to State.

The problem of diversity among State regulations regarding motor transport has existed for many years, but it has become increasingly important as the scope of truck operations expanded. The problem has also been intensified by the fact that the years since the end of the Second World War have brought a substantial increase in the number of private passenger cars as well as trucks. Consequently, highways have become inadequate, while concurrently the cost of highway building and maintenance has risen. States have faced the problem of allocating the cost of providing and maintaining highways among the various groups who use them.

An outstanding feature of the intensified search for new sources of revenue has been the adoption of highway taxes supplemental to the traditional registration fees and fuel taxes, which have historically provided highway revenues.

The trucking industry has been highly critical of these so-called *third-structure* taxes. As more and more States have adopted some form of third-structure tax, tax reciprocity between States has received a setback. Historically, the vehicle registration fees imposed by the States were subject to reciprocity, while fuel taxes were paid at the time and place fuel was purchased. For various reasons the States have not been willing to allow reciprocity in the case of highway use taxes. This, in turn, has led to retaliation in the form of cancellation of reciprocity on registration fees. Thus, some breakdown in the reciprocal arrangements among States has already occurred and may become more serious in the near future.

Of the 20 States (including the District of Columbia) considered in this study--an area reaching from the southern borders of Virginia, Kentucky, and Illinois north and east to the Canadian border--no 2 contiguous States had size and weight laws which were uniform in every respect. Nor were there 2 adjoining States which imposed substantially uniform taxes on identical trucks operating in the same manner. The range in total tax loads among the various States was great, but not so great as one might think from an examination of the various individual fees.

In general, the various States have so adjusted the tax structure as to increase revenue in one area to make up for low fees in another. Notably, if a State has very low registration fees, it may have a high personal property tax. Many States have no personal property tax on motor vehicles, but they have compensated themselves by increasing their registration fees.

Despite this moderate compensating effect, the total tax loads displayed a substantial range. For the 3-axle vehicle, the range was from $521 to $1,379, and for the 4-axle vehicle, $931 to $2,653. For the 5-axle vehicle, the tax load ranged from $1,116.05 to $3,269.

HIGHWAY TRANSPORTATION BARRIERS IN 20 STATES

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BACKGROUND OF STATE CONTROL OVER SIZE AND WEIGHT OF TRUCKS

Extensive use of motortrucks for commercial transportation did not begin until the early 1920's (23) (19). 1/ Until 1930, trucking was chiefly of an intrastate nature and was restricted for the most part to the areas surrounding cities and towns. As motor vehicles became more efficient and the highway network became more extensive, the scope of commercial motor trucking operations became greater and began to take on an interstate character.

It soon became evident that some regulatory authority had to be exercised over truck operation. Trucks, like private motorcars, operated on the public highways and consequently were subject to the same public regulation. Registration of vehicles, licensing of drivers, and payment of fees and taxes were required of truck operators largely on the same basis as they were of operators of private motorcars.

Development of Distinction Between Regulation of Large Trucks and of Automobiles

As trucks became larger and more dependable, their importance in interstate movement began to increase. For some years reciprocity agreements among the States had allowed private automobiles to cross State lines freely. Such agreements, either formal or informal, were made by the officials of various States and provided that an automobile licensed in one State could operate through or in another State for a specified period without payment of an additional fee. By 1930, when interstate trucking became widespread, those persons concerned with taxing and regulating truck traffic began to view the truck problem in a somewhat different light.

The rapidly increasing physical size of trucks presented problems. The almost universal use of the pneumatic tire, along with improved highway construction, stimulated truckers to operate larger and heavier vehicles. The traffic problem arising from the operation of large vehicles became acute. In addition, certain elementary considerations of highway safety set some limit on vehicle size. To complicate the problem further, the States became concerned about the effect of the size of vehicles on highway maintenance. The advent of the pneumatic tire had mitigated this problem for some years, but by 1930 the size of trucks was growing swiftly.

1/ Underscored figures in parentheses refer to literature cited, p. 38.

Considerable diversity of opinion is evident as to how serious the element of truck damage to highways is. Commercial motor carriers have claimed that large vehicles do little damage to highways, while other highway users and competing rail carriers have often attributed much highway damage to trucks. This controversy has raged for 20 years and shows no sign of ending.

By the mid-1930's the trucking industry had largely passed the formative years and had become well established. However, truck operations were still geographically limited in comparison to those of railroads. Nearly every truck line was restricted to a few States and none was transcontinental in scope.

Development of Truck Regulation

Since each State provided highways and regulated the traffic thereon, it soon became obvious that truck operators who operated in several States faced the problem of nonuniformity of State regulations.

State authorities began to impose regulations concerning the length, width, height, and weight of trucks. Also, safety equipment, driver qualifications, and related matters were subject to regulation. Both State and local governments issued regulations of both sorts. These regulations were generally in addition to those concerning speed, parking, and other matters which were imposed on traffic by local governments. On the economic side, the truck operator paid the same type of fees as the private automobile operator, plus, in most States, some special fees required of common or contract carriers.

These fees were characteristically: (1) Registration fees and (2) fuel taxes. A large truck, whether used privately or for hire, generally paid a registration fee substantially greater than that for private motorcars. Such registration fees were often on a weight basis or, at least, were graduated progressively upward so that large vehicles paid considerably more than smaller vehicles. Fuel taxes assessed on either gasoline or diesel fuel also came to a much greater total per vehicle, but only because the vehicle used much more fuel, since the tax per gallon did not differ between commercial and noncommercial users. In addition to the so-called *two-structure* taxes, that is, registration fees and fuel taxes, the commercial trucker in some States paid some nominal fees to the State Public Service Commission or similar body.

As was true for private automobiles, the truck registration fees were usually subject to reciprocity agreements. Thus, a truck registered in one State could operate in another State which had agreed to reciprocity without payment of more than nominal amounts for tags and identification papers. Fuel taxes were collected at the time and place where fuel was purchased, and no question of reciprocity arose.

Rise of Interstate Trade Barriers in the 1930's

The economic depression of the 1930's had a marked influence upon commercial truck regulation. The States faced severe economic problems. Surplus goods piled up and markets became scarce. Some States began to impose taxes upon specified commodities entering from another State. Interstate traffic by highway was especially regulated.

Another depression phenomenon was the development of the itinerant trucker. The itinerant trucker was a trucker-merchant who moved from place to place buying up surplus goods and selling them wherever he found a market. Since he had little overhead, he was able to undersell established local merchants and soon became the object of much abuse. No doubt there were many practices of the *gypsies,* as they were commonly called, which were open to question. At any rate, the itinerant was denounced as being dishonest at worst, and irresponsible at best (15).

During this period barriers to trade took many forms. Taxes were imposed, quarantines were established, and ports-of-entry were set up at some State lines to enforce trade laws and traffic regulations (29). Local governments entered into the fray with the establishment of local laws relative to the marketing of goods.

The publications of this era indicate that many persons were of the opinion that a complete breakdown in interstate trade was possible (1), (2). The trucking industry felt the effects of this situation in many ways. State police and port-of-entry personnel began to enforce the size and weight laws stringently. Laws were enacted requiring the trucker to limit the amount of fuel he could bring into the State, or in lieu of this, to pay a tax on fuel used in the State but purchased elsewhere.

Since the States were eager to keep revenue in the State as well as to keep outside products out, various fees were collected, some of them more resented as a nuisance than as an economic burden.

Federal Regulation of Trucking

The Federal Motor Carrier Act was approved by the President on August 9, 1935, and became Part II of the Interstate Commerce Act. The act, with numerous exceptions, made motor carriers in interstate commerce subject to the regulation of the Interstate Commerce Commission. All *for hire* vehicles moving in interstate commerce were subject to safety requirements, but a large number of exemptions were granted insofar as economic regulation was concerned.

The passage of the Motor Carrier Act did not change the regulatory situation materially insofar as most trucks were concerned. The States still exercised jurisdiction over all intrastate traffic and, to a large extent, over the interstate vehicles as to both economic and safety regulation. Regulations concerning size, weight, and safety equipment of vehicles continued to be promulgated by the States.

As economic conditions eased during the early part of World War II, the prewar restrictions on interstate trade began to lessen. It was also apparent that the trucking industry had become sufficiently important to the economic well-being of the country that unnecessary barriers could not be tolerated.

The Period of World War II

When the United States entered World War II, the variation in truck size and weight limits posed a real problem. Many cases came to light of defense shipments being delayed because of weight and size limits of trucks. In 1942, the U. S. Department of Commerce

sponsored a Federal-State conference on war restrictions. This conference was held May 5-7 in Washington, D. C., and was attended by a number of delegates from State governments and Federal agencies. Little more than preliminary discussion was attempted at this meeting, but on May 16 of the same year the President appointed a committee made up of representatives of agencies concerned with the war effort. He requested the committee to meet with the State Governors to work out a cooperative solution to the highway barrier problem.

The joint committee met and agreed to a ready and simple, if temporary, solution in the form of standards of vehicle size and weight. These standards were set by the Bureau of Public Roads, in cooperation with the State Highway Commissioners, and had already been approved by half the States.

The committee urged that the States permit all commercial vehicles to be loaded and operated on the highways to the full extent of their capacities within the limits of the standard proposed by the Bureau of Public Roads, as follows:

Permissible limits:		
Width	inches	96
Height	feet	12½
Length:		
Single vehicle	do	35
Combination	do	45
Weight:		
Per inch of tire width	pounds	600
On single axle	do	18,000
On 2 axles	do	30,000
On 3 axles	do	40,000
Of semitrailer	do	40,000
Of other combination	do	40,000

For all loads exceeding the above standard, special certificates were to be issued by the proper highway officials. Any total gross load should be limited by the formula:

$$W = C(L + 40)$$ in which:

W = gross weight in pounds.

L = distance in feet between foremost and rearmost axles of any group of 2 or more axles.

C = 750 when L is greater than 18, or 650 when L is 18 or less.

These requirements were considered to be the most severe which should be imposed on vehicle movement during the war. Nothing prevented the States from adopting a less restrictive standard if they so chose. Most of the States agreed to a liberalization of their laws sufficient to meet the above standard.

A somewhat less detailed standard had been promulgated by the American Association of State Highway Officials. The Association standard was intended more as a long-range recommendation than were the Bureau of Public Roads' recommendations. The A.A.S.H.O. standard provided for:

Maximum vehicle length:		
Single	feet..	35
Combination of semitrailer and tractor	do....	50
Any other combination	do....	60
Maximum vehicle height	do....	12½
Maximum vehicle width	inches..	96
Maximum load on any axle	pounds..	18,000

Weight limits were to be governed by a formula taking into account the length of the combination and the distribution of axles.

The recommendations of the A.A.S.H.O. were generally held in high regard by truckers and manufacturers of equipment. There were truck operators and manufacturers who urged the States to adopt them (14, p. 10). However, some of these same groups later were of the opinion that these standards should be revised (13).

At any rate, the war years were not considered by the States as being the proper time to embark upon a program of weight-size law revision, except on an emergency basis.

The Postwar Years

At the conclusion of World War II, when equipment again became available in quantity, the trucking industry began a substantial growth. In 1939, all classes of intercity motor carriers had transported 52.8 billion ton-miles of freight. In 1944, the figure was 58 billion. By 1948 this figure had increased again to 115.5 billion ton-miles, and at the end of 1953 it reached 206.8 billion ton-miles. The 1953 figure represented about 17 percent of all ton-miles of freight traffic by all modes of transport (5).

On January 31, 1955, there were 13,131 certificates outstanding which had been issued by the Interstate Commerce Commission authorizing the common carriage of property by motor carrier. In addition, there were 2,650 ICC permits to contract carriers, authorizing them to operate (31).

The motor carrier part of the Interstate Commerce Act exempts certain interstate trucking operations--notably, the hauling of agricultural commodities--from the requirement that for-hire trucking be limited to carriers authorized by the ICC (26). These exempt haulers are numerous. There are also many private trucking operations, such as those of oil companies or grocery chains. These, too, need no ICC authorization.

To some extent, this increase in truck traffic reflects the generally increasing economic activity since 1939. Trucks also move a substantial quantity of goods formerly moved by rail.

The movement of farm products by truck has undoubtedly been much greater than it would have been if this traffic had been subject to the Federal economic regulation which applies to interstate truck traffic generally. Furthermore, this heavy volume of agricultural traffic probably results in a greater volume of nonagricultural traffic by truck than would otherwise move by that mode of transport.

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Many a regulated carrier is probably enabled by a back haul of exempted freight to keep down his rates on the outbound, regulated service. Thus he can get a bigger tonnage on the outbound trips than he could if his rates on that part of the traffic were above their present level.

In 1954, there were 9,792,000 trucks of all kinds registered in the United States. Almost 17 percent of all motor vehicles registered were trucks (11, p. 20).

ECONOMIC CHARACTER OF THE MODERN TRUCKING INDUSTRY

The trucking industry is much more informally organized than the other transportation agencies. There are a large number of owner-operated vehicles, and the number of firms is great, with the size of the average firm small compared with other transportation agencies. It is likely that sole proprietorships still dominate the industry, and a number of large firms are still operated by the founder. Many owner-operators engage in trucking on a part-time basis, operating only 1 or 2 trucks. This is especially true of agricultural haulers, whose operations are most often apt to be seasonal. Since agricultural haulage between States is exempt from economic regulation, it is difficult to measure the extent of this activity. The carriers who have been granted certificates as either common or contract carriers by the Interstate Commerce Commission perform most of the interstate service, carrying general commodities or special commodities such as petroleum, automobiles, or household goods.

However, even among the certificated carriers there is a considerable degree of informality of organization. Many owner-operators lease equipment to common and contract carriers for one or more trips. Perhaps the most important advance which the modern trucking industry has made is in the scope of its operations. The advance in length of haul has been marked. Until the 1930's, the trucking industry was considered to be a short-haul carrier for the purpose of feeding rail lines. A truck haul of more than 400 miles was rare. Nowadays, hauls of 700 to 1,000 miles are common, and some movements are transcontinental. Also, trucks--once thought to be useful only for certain products--have taken on more and more varied traffic. Many heavy bulk commodities, such as grain or fertilizer, which were once thought to be solely within the domain of the railroads, are now in large measure moving by truck.

Obviously, the motortruck is more important than formerly, and consequently any factors which tend to hinder motortruck transportation are much more widespread in their effects than in the past. This new status of the trucking industry has increased the pressure for liberalized size and weight laws and uniform tax laws and fees relative to truck transportation. In support of its position, the organized industry has declared that such laws should be based on scientific findings as to the effect which trucks have upon the highways. The same statement is made by some advocates of severe size and weight restrictions. Unfortunately, as is noted later, thus far the tests designed to provide these scientific findings have not yielded definitive results.

Since 1940, many States have enacted less stringent weight-size laws. However, the trucking industry is far from satisfied with the present situation. On the economic front, some ground has been lost--this point will be discussed in a later section.

THE TYPICAL VEHICLES

In order to measure the impact of current standards of weight and size limits as well as the present tax structure, this study undertakes to consider the influence of such factors upon the operation of 3 typical vehicles. The vehicles chosen as typical for purposes of this study are shown in figures 1-3. 2/

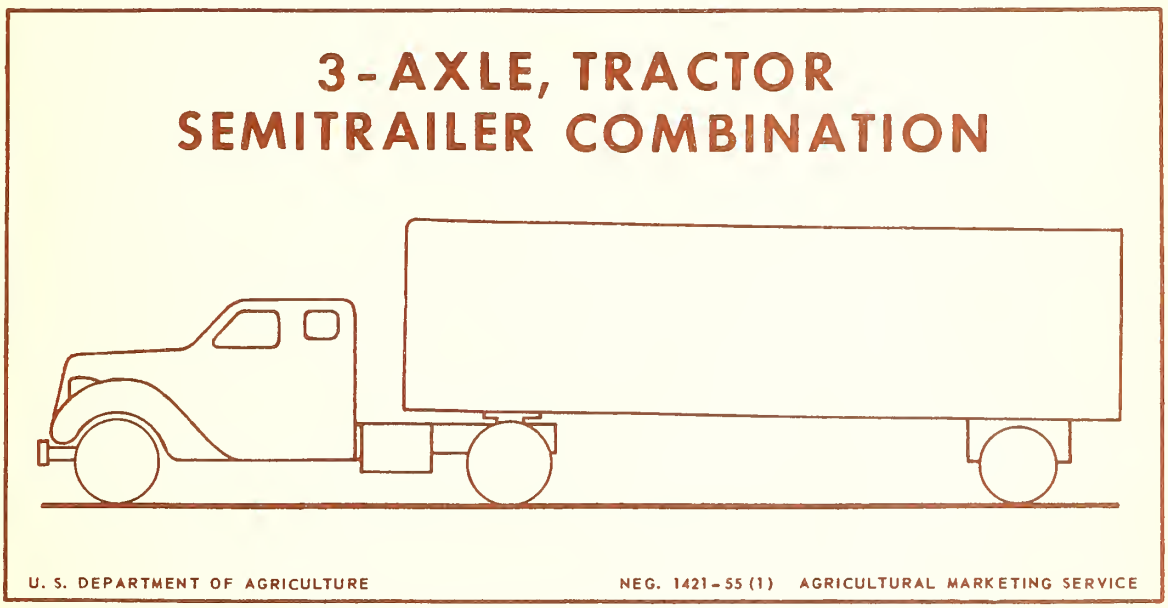

Figure 1.--Vehicle No. 1: The 3-axle, tractor semitrailer combination (gasoline powered).

Gross vehicle weight--40,000 pounds (includes vehicle and load)
Approximate vehicle length--39 feet
Approximate annual mileage--40,000
Average miles per gallon of gasoline--5
Average annual gasoline consumption in gallons--8,000
Average annual revenue-ton-miles--285,000
Estimated annual gross earnings--$23,000

2/ All vehicle specifications and the figures in regard to property taxes were taken from *Public Roads*, April 1953 (25). The tractor semitrailer combination differs from a straight truck in that the former consists of two units, with the tractor (the cab and engine unit) pulling the semitrailer, the front end of which rests on the tractor. The straight truck (a single unit of engine, cab, and body, with no trailer) is not often used for heavy duty intercity hauling, chiefly because if it were built long enough to carry a load equal to that of large semitrailers, it would not be adequately maneuverable.

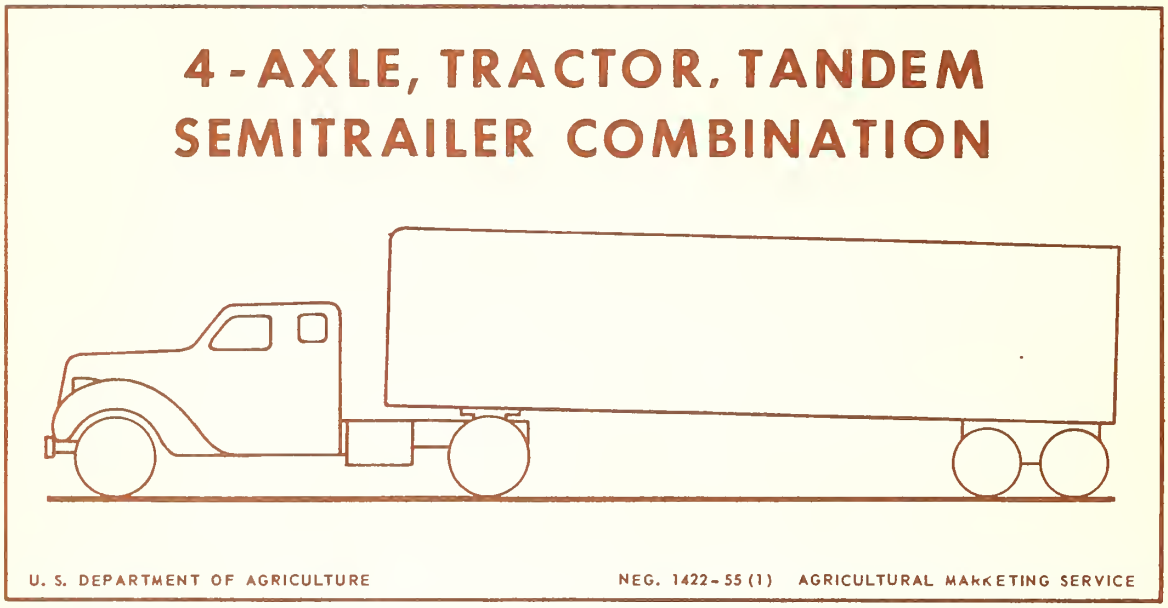

Figure 2.--Vehicle No. 2: The 4-axle, tractor, tandem semitrailer combination (gasoline powered).

Gross vehicle weight--50,000 pounds (includes vehicle and load)
Approximate vehicle length--42 feet
Approximate annual mileage--65,000
Average miles per gallon of gasoline--4
Average annual gasoline consumption in gallons--16,250
Average annual revenue-ton-miles--695,000
Estimated annual gross earnings--$52,000

The 3- and 4-axle vehicles described under figures 1 and 2 are probably the most common of the commercial vehicles operating at the present time. The 4-axle combination is gaining rapidly, although there are still many 3-axle vehicles in operation.

The 4-axle tractor, tandem semitrailer combination, as illustrated in figure 2, includes the 2-axle or tandem semitrailer. The tandem wheels on the semitrailer are so placed as to give the best weight distribution depending upon (a) the type of cargo which is usually carried and (b) the laws of the States in which the truck is generally used. On some of the most modern semitrailers the tandem axle carriage can be moved forward or

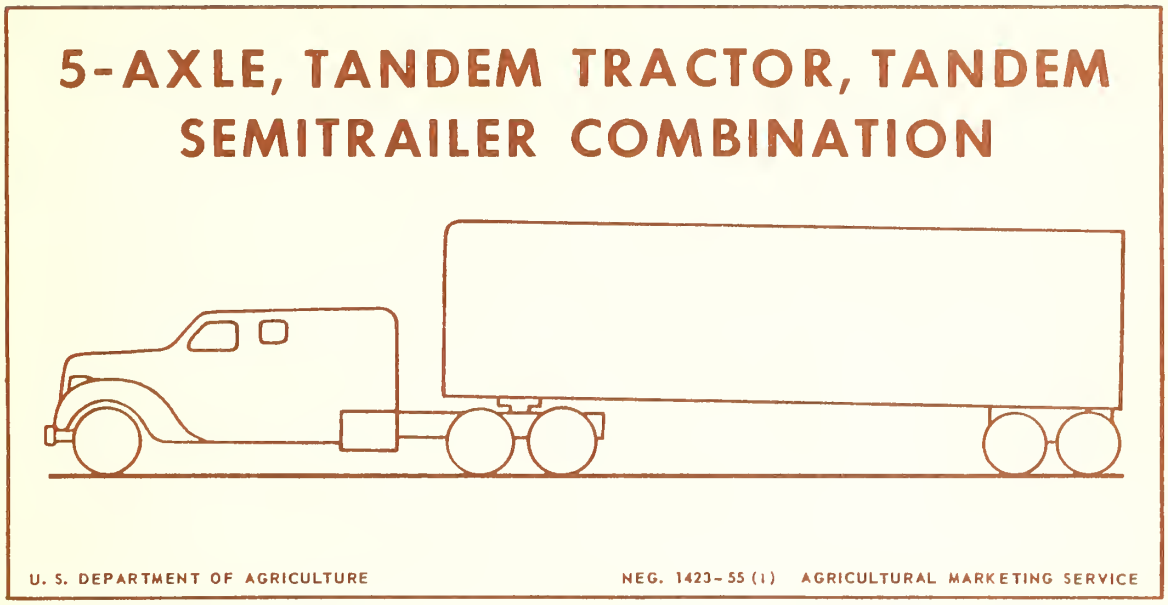

Figure 3.--Vehicle No. 3: The 5-axle, tandem tractor, tandem semitrailer combination (diesel powered).

Gross vehicle weight--64,000 pounds (includes vehicle and load)
Approximate length of combination--49 feet
Approximate annual mileage--80,000
Average miles per gallon of diesel fuel--4.7
Average annual diesel fuel consumption--17,021 gallons
Average annual revenue-ton-miles--1,085,000
Estimated annual gross earnings--$78,000

backward rather easily, but on most trailers the placement of the carriage can only be changed with difficulty. A few tandem semitrailers are designed to permit fairly easy adjustment of the space between the two axles of the tandem set.

Another way of trying to equalize the weight borne by the respective axles is to use a 3-axle tandem tractor with a single-axle trailer, with the greatest cargo weight placed on the forward end of the semitrailer.

The 5-axle diesel-powered combination is the largest type of truck in regular commercial operation in the Northeastern States. Before 1945 the large diesel truck was seldom operated in the eastern half of the United States. However, this truck made such a good record during the war years on the score of durability and economy that it became more popular and is now quite common in all parts of the country, especially for longer runs at sustained speeds.

As will be indicated in more detail later, a truck of this size could not operate fully loaded in all of the States. For the most part, this vehicle would be operated only by a common carrier. A contract or private carrier would be less likely to have a sufficiently intensive use for the truck to justify such an investment.

A large truck might be operated into various States in which it would be illegal to operate with a full load, the operator might find it practicable to make occasional trips with reduced loads in States in which weight limit is lower than the highest gross weight of which the truck is capable.

EFFECT OF STATE SIZE AND WEIGHT LAWS ON TYPICAL VEHICLES IN THE AREA STUDIED

This study is focused on the 19 States east of the Mississippi River and north of Tennessee and North Carolina, and includes the District of Columbia. For convenience these will be called the 20 States (fig. 4).

Many of the size and weight limits discussed in this report were established by administrative agencies, acting under authority conferred by the State legislatures. The report does not attempt to distinguish between statutes and those regulations having the force of law. Both are covered, and both are referred to as *the law* and the *regulations* because what is covered by statute in one State is covered in another by administrative regulations issued pursuant to statutory authority.

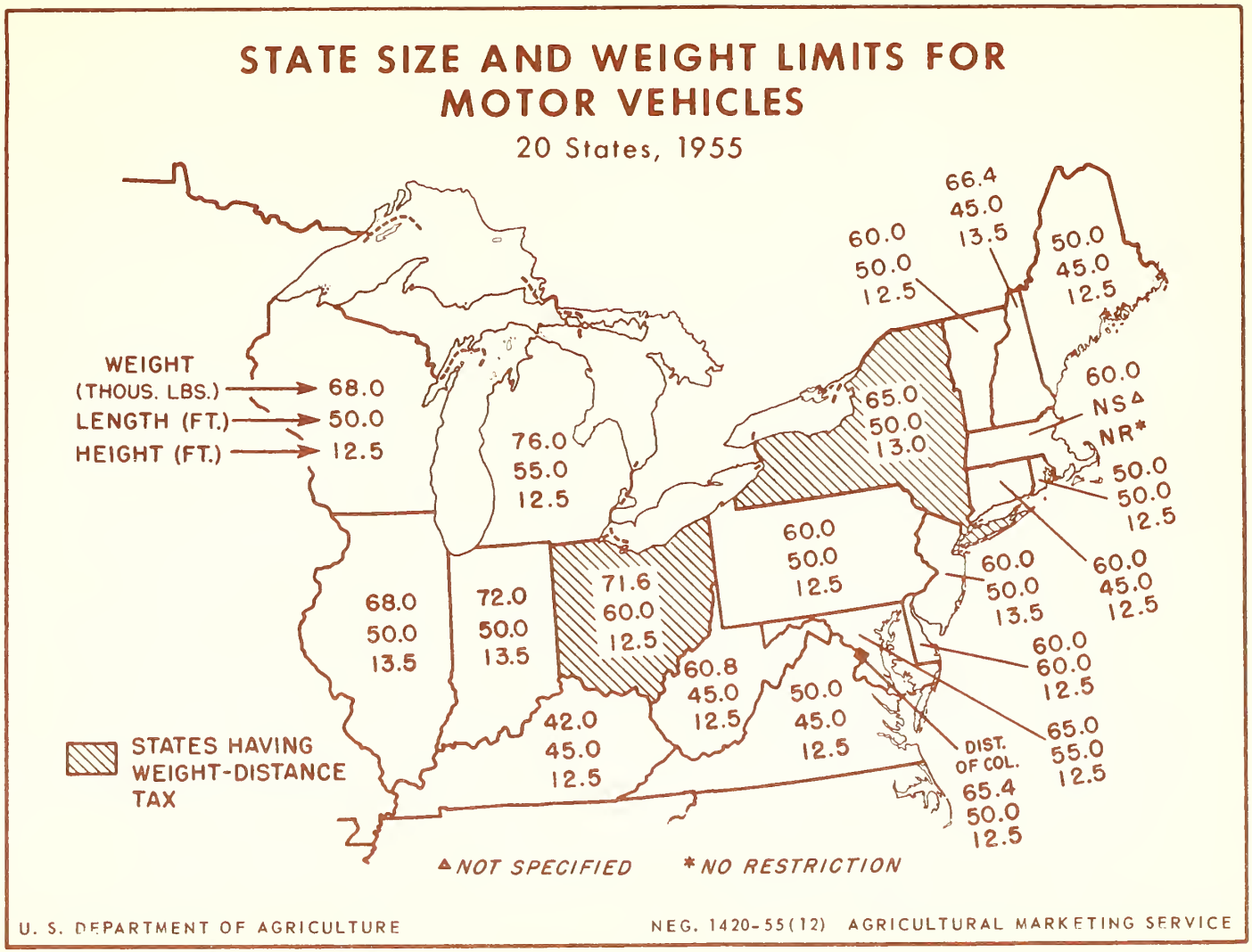
STATE SIZE AND WEIGHT LIMITS FOR MOTOR VEHICLES
20 States, 1955
WEIGHT (THOUS. LBS.)
LENGTH (FT.)
HEIGHT (FT.)
68.0
50.0
12.5
STATES HAVING WEIGHT-DISTANCE TAX
68.0 50.0 13.5
72.0 50.0 13.5
76.0 55.0 12.5
71.6 60.0 12.5
60.0 50.0 12.5
65.0 50.0 13.0
66.4 45.0 13.5
60.0 50.0 12.5
50.0 45.0 12.5
60.0 NS△ NR*
50.0 50.0 12.5
60.0 50.0 13.5
60.0 45.0 12.5
60.0 60.0 12.5
65.0 55.0 12.5
DIST. OF COL.
65.4 50.0 12.5
60.8 45.0 12.5
50.0 45.0 12.5
42.0 45.0 12.5
△NOT SPECIFIED
*NO RESTRICTION
U. S. DEPARTMENT OF AGRICULTURE
NEG. 1420-55(12) AGRICULTURAL MARKETING SERVICE

Figure 4.

All 20 States impose size and weight limits, and these limits are far from uniform. The limits for the 20 as of September 15, 1955, appear in table 1. 3/ Since considerable traffic in this area is interstate in nature, a highway carrier must adjust himself to a number of combinations of weight, height, length, and width. Of the 20 States considered, the highest degree of uniformity among contiguous States occurred in New England. The weight limits for a semitrailer combination ranged from a low of 42,000 pounds in Kentucky to a high of 76,000 pounds in Michigan.

Height is a minor problem for most operators. Typically, a truck which conforms to the legal limits on width and weight would, for engineering reasons, be so designed as to have a lower height than the legal maximum. There are special carriers, such as those transporting automobiles, which would run afoul of the ordinary height limits set by the States; but, for these carriers, the regulations on height usually provide an exception. A width limit of 96 inches was allowed in all the States covered in this survey except Connecticut and Rhode Island, which allowed 102 inches.

3/ Two outstanding barriers to truck transportation were markedly reduced after this report was written. Early in 1956, the Virginia legislature made substantial changes in the laws relating to motortruck operation and taxes (effective July 1, 1956). Perhaps the most important from the operators' viewpoint is the increase in maximum allowable weight from 50,000 to 56,800 pounds. The new law also increases the permissible length of vehicle combinations from 45 to 50 feet, plus a length tolerance of 2½ feet. The single axle limit of 18,000 pounds remains unchanged, but the tandem axle weight limit is reduced to a uniform figure of 32,000 pounds instead of permitting, as hitherto, 36,000 pounds on heavy duty highways.

The liberalization in size and weight limits was coupled with a change in truck taxes providing for an increase in the fuel tax for trucks with 3 or more axles, from 6 cents to 8 cents per gallon (including fuel used on Virginia highways, but purchased elsewhere). The law changes the basic license provisions for a tractor semitrailer combination by applying hereafter to the tractor alone a license fee equal to those hitherto assessed against the tractor and the semitrailer respectively. For the semitrailer, only a nominal fee for an identification tag will be required. The 2 percent gross receipts tax on Virginia carriers is repealed.

The 1956 legislative session in Kentucky also made basic changes in the laws relative to truck operation (effective March 22, 1956). The new law provides an increase in maximum permissible weight from 42,000 pounds to 59,640 pounds, and permits vehicles to be 48 feet in length as compared with the previous limit of 45 feet. Both the new limits are effective only on designated highways, as was also true of the old limits; the restrictions applicable on other roads are more severe than on those designated roads. The new legislation also provides for a surtax of 2 cents per gallon (in addition to the 7 cents now in effect) to be paid by operators of large trucks (9, p. 23; 10, p. 1).

Table 1.--Size and weight limits for 3 typical semitrailer combinations, 20 States, Sept. 15, 1955

Region and State	Vehicle length: Semi-trailer combination	Vehicle length: Other combinations 1/	Gross weight 2/: 3-axle tractor semi-trailer combination	Gross weight 2/: 4-axle tractor tandem semi-trailer combination	Gross weight 2/: 5-axle tandem tractor tandem semi-trailer combination	Width	Height
	Feet	Feet	Pounds	Pounds	Pounds	Inches	Feet
New England:							
Maine 3/	45	45	50,000	50,000	50,000	96	12½
New Hampshire	45	45	52,800	66,400	66,400	96	13½
Vermont	50	50	50,000	60,000	60,000	96	12½
Massachusetts	45	NS	4/ 60,000	4/ 60,000	4/ 60,000	96	NR
Rhode Island	50	50	50,000	50,000	50,000	102	12½
Connecticut	45	NP	50,000	60,000	60,000	102	12½
Middle Atlantic:							
New York 3/	50	50	58,400	65,000	65,000	96	13
New Jersey	45	50	60,000	60,000	60,000	96	13½
Pennsylvania	45	50	50,000	60,000	60,000	96	12½
East North Central:							
Ohio 3/	50	60	57,000	69,500	71,600	96	12½
Indiana	50	50	54,000	68,000	72,000	96	13½
Illinois	50	50	45,000	59,000	68,000	96	13½
Michigan 3/ 5/	55	55	54,000	68,000	76,000	96	12½
Wisconsin 6/	50	50	54,000	66,000	68,000	96	12½
South Atlantic: 7/							
Delaware 3/ 8/	50	60	48,000	60,000	60,000	96	12½
Maryland 3/	55	55	65,000	65,000	65,000	96	12½
Dist. of Columbia 3/	50	50	65,400	65,400	65,400	96	12½
Virginia 3/ 6/	45	45	40,000	50,000	50,000	96	12½
West Virginia	45	45	54,000	60,800	60,800	96	12½
East South Central: 7/:							
Kentucky 6/	45	NP	42,000	42,000	42,000	96	12½

1/ *Other combinations* are: Straight trucks with full trailer; tractor with semitrailer and full trailer.

2/ In all cases the weight limits shown are subject to certain assumptions and conditions. In every instance, tires are assumed to be of the low-pressure pneumatic type and all load-carrying axles are assumed to have dual wheels. In those States where weight limits are prescribed by a *bridge formula* specified by the State, the National Highway Users Conference has calculated the weight limits under the following assumptions: (1) An 8-foot overhang was deducted from the length of the vehicle to determine the distance between foremost and rearmost axle; (2) tandem axles were considered to be a minimum permissible distance apart; (3) it was assumed that each axle (including the front axle) carries the maximum permissible load. In actual weighing practice, the weighing personnel is provided with an official table reflecting the diversity among trucks and, from this, can read off proper gross and axle weights for a particular vehicle under given conditions.

3/ This State has a bridge formula. See footnote 2, above.

4/ Effective Dec. 1, 1955. 5/ *Frost law* requires reduced loads in spring season.

6/ Limit shown applies only on designated highways. On others, limit is lower.

7/ This region also includes States not covered in this report. 8/ With power brakes.

Key: NS = not specified; NR = no restriction; NP = not permitted. National Highway Users Conference, Inc.

New York State is important as a bridge or a barrier between populous regions lying east and southwest of it. From the standpoint of truckers and shippers in those regions, it was fortunate that New York was more liberal than the adjoining States as regards truck size and weight and hence, on that score, presented no barrier. For the 5-axle combination, New York allowed 65,000 pounds. Connecticut, New Jersey, Massachusetts, Vermont, and Pennsylvania allowed 60,000 pounds. As for length, New York and Vermont both allowed full-trailer combinations and permitted a length of 50 feet for both semitrailer and other combinations. Massachusetts restricted semitrailer combinations to 45 feet but did not specify a length limit for other combinations. New Jersey and Pennsylvania allowed a 45-foot length for semitrailers and 50 feet for other combinations. Connecticut restricted semitrailer combinations to 45 feet and prohibited full trailers.

The New York limit on height was 13 feet. In Massachusetts, there was no restriction, while New Jersey had a limit of 13½ feet. New York's other neighbors--Vermont, Connecticut, and Pennsylvania--all had a limit of 12½ feet. Only as to the width limit was New York at least as restrictive as all of the adjoining States. The limit was 96 inches in New York, Vermont, Massachusetts, New Jersey, and Pennsylvania. In Connecticut, it was 102 inches. Concessions on height and width are of little importance if gross weight is restrictive, especially since most truckers who really need additional height are granted special permits.

Despite having a rather varied economy, New England is so commonly viewed as a well-defined region that it merits some attention here as an entity. Semitrailer combinations were limited to 45 feet in New Hampshire and Maine and, as noted above, Connecticut and Massachusetts as well--4 States out of 6. The 50-foot limit noted above for Vermont applied likewise in Rhode Island. The New England States were also fairly uniform as to weight limits. Maine and Rhode Island allowed 50,000 pounds. Connecticut, Massachusetts, and Vermont--all mentioned above in the discussion of New York and its neighbors--had a limit of 60,000 pounds, while New Hampshire allowed 66,400.

Consequently, prototype vehicles No. 1 and No. 2 could have traveled throughout New England without violating the length and weight laws. These vehicles could also have moved freely into New York State. However, vehicle No. 3, legal in New York State, would have violated the weight limits of all the New England States except New Hampshire, where it would have violated the length limit.

Even in New England, vehicle height limits varied somewhat. A maximum of 12½ feet exists in Maine and Rhode Island and, as mentioned previously, in Connecticut and Vermont. New Hampshire had a 13½-foot limit, while Massachusetts, as noted above, set no restriction on height.

In Pennsylvania, until mid-1955 the weight limit for the semitrailer combination was 45,000 pounds, with a length of 45 feet and a height of 12½ feet. Pennsylvania thus blocked off the States to the west and south from the more uniform New York-New England area, except for trucks finding it convenient to pass through New Jersey. The Pennsylvania limit was later changed to 50,000 pounds for 3-axle combinations and 60,000 pounds for 4- and 5-axle combinations.

Ohio, adjoining Pennsylvania on the west, allowed 71,600 pounds; West Virginia, on the south, 60,800 pounds; and Maryland 65,000. Pennsylvania and West Virginia allowed 45 feet in length, Maryland 55 feet, and Ohio 50 feet. Thus, traffic moving eastward or northeastward

from the west or south formerly had to skirt Pennsylvania in order to move into the New York-New England area with weight legal in the areas of origin and destination, but not legal in Pennsylvania.

Of the 20 States considered, no 2 States with a common border had identical regulations in all 4 categories, that is, weight, height, length, and width.

Of the 3 typical vehicles considered, the No. 1 truck (the 40,000-pound, 39-foot, 3-axle combination) could have moved freely into all 20 States. However, even this vehicle could not have moved at will in Kentucky and Virginia, which limited such trucks (42,000 pounds in Kentucky, 40,000 pounds in Virginia) to particular highways. (As mentioned above, those States have since modified their restrictions. See footnote 3, page 12.)

Also, a truck loaded to the 40,000-pound limit would have allowed no leeway for an accumulation of mud or ice which might cause an otherwise legally loaded truck to be overweight at some stage on its run. Unless some tolerance was allowed, a truck loaded to the legal limit might not remain legal for very long. But most States, including Virginia, allowed some tolerance.

In the 5 East North Central States (Ohio, Indiana, Illinois, Michigan, and Wisconsin), prototype vehicle No. 1 would have encountered 3 different weight limits; Nos. 2 and 3 would each have encountered 4 different weight limits; and there were 2 different length limits. Only width limits were uniform among the 5 States.

A truck running eastward from Chicago, Ill., would have encountered a different limit on weight in each of the States crossed on the most direct route; that is, 68,000 in Illinois, 72,000 in Indiana, 71,600 in Ohio, 60,000 in Pennsylvania, and 65,000 in New York. A truck moving up the seaboard from a point in the South Atlantic States would have encountered the 50,000-pound limit in Virginia (allowed only on the better highways), the 65,000-pound limit in Maryland, and the District of Columbia limit of 65,400 pounds. It would have found uniform weight limits of 60,000 pounds in Delaware and New Jersey. Any movement of the No. 2 or No. 3 typical vehicle from most of the central area of the South toward the Chicago area would have been blocked off on a direct route by Kentucky, which imposed the most severe limit in the Nation--42,000 pounds for any combination, and this only on designated highways.

To sum up in terms of the typical vehicles: Only the No. 1 combination could have operated throughout the 20 States. 4/ The No. 2 vehicle (4-axle, 50,000-pound, 42-foot tandem semitrailer) could not have operated in Kentucky with anything near a full load. It could have operated in the other States, provided it was within the limitations on width and height. Vehicle No. 3 (5-axle tandem tractor, tandem semitrailer, 64,000 pounds, 49 feet long) could have operated fully loaded in New York, the District of Columbia, Maryland, Indiana, Illinois, Michigan, Ohio, and Wisconsin, but not in any of the 12 remaining States. It would also have been within the length limitations of the States named. Some question arises as to the legality of this vehicle as regards length in other States. The length (49 feet) was not permissible in Kentucky, West Virginia, Virginia, New Jersey, Pennsylvania, Connecticut, Massachusetts, New Hampshire, or Maine. All of these States allowed only 45 feet. However, it is possible that a truck of this capacity could be built within the 45-foot limit by the use of a cab-over-engine tractor or some other modification, which might have brought it within the law.

4/ This combination was limited to designated highways in Virginia.

The 5-axle truck--typical vehicle No. 3--is especially popular for use with refrigerated semitrailers since refrigeration equipment is particularly heavy. The refrigerated vehicle presents a particular weight problem. A typical nonrefrigerated 4-axle tractor semitrailer combination weighs from 17,000 to 20,000 pounds when empty, depending, of course, upon equipment. A similar refrigerated combination would weigh about 4,000 pounds more. The increase in weight is due not only to the mechanical refrigeration device, but also to the insulation in the trailer. Various experiments are under way to reduce the weight of the combination by using aluminum or other lightweight metals for structural members, duckboards, and racks. Attempts are also being made to find an inexpensive way to reduce the absorption of moisture in the insulation material, because moisture may add as much as 1,500 pounds to the total trailer weight over the course of a year or more. Such innovations may eventually increase allowable payloads, but in the immediate future the only solution to the problem is for these trucks to operate partially loaded in restrictive States. Another alternative which is receiving attention is to move trailers by rail in *piggy-back* operations (trailer-on-flat-car service) through States where especially low limits on weight prevail, or to operate a *sea-land* service. This latter proposal calls for trailers to be loaded on ships in North Carolina ports and to be transported up the east coast to New York or Providence, an arrangement which appeals especially to east coast truckers who could thus bypass Virginia, the most restrictive State on the east coast between Florida and New York. (21, pp. 43-44).

In many of the States considered, the legal payload of a refrigerated 5-axle combination is only about 15,000 pounds, considerably less than the weight of the equipment used to move it. In some parts of the United States the operator could increase the payload by using a full trailer--a trailer having one or more axles forward as well as at the rear, instead of having its forward end rest on the tractor. However, among the 20 States here under consideration, Kentucky and Connecticut prohibited full trailers outright, and the other States permitted them only under such overall length restrictions (for the tractor plus trailer) that a full trailer is impracticable for commercial truckers.

EFFECT OF STATE SIZE AND WEIGHT LAWS ON OTHER KINDS OF VEHICLES

Although the discussion relative to vehicle size and weight has thus far centered around trucks, it must be kept in mind that the same restrictions apply to all highway vehicles. Commercial motorbusses are subject to the same restrictions as trucks. Busses are less hindered by such regulations than trucks, chiefly because their gross weight is well below the most restrictive limit. The common intercity bus weighs about 28,000 pounds gross, which is considerably below the most restrictive weight limit then in force in the 20 States studied, viz., 42,000 pounds.

Most busses do, however, take full advantage of the maximum limits as to length and width, and some of the newer busses are nearing the maximum weight limits. Recently a new and larger bus was introduced which weighs almost 40,000 pounds gross. However, this particular bus has a tandem rear axle arrangement. The latter feature aids compliance with limitations on the weight per axle.

Many States have provisions in their laws whereby farm machinery or specialized construction equipment, if designed chiefly for use off the public roads, is exempt from all specific limits on size and weight when it does move on such roads. Moreover, for the hauling of such property as telephone poles, long pipes, and heavy machinery, it is possible to get special permits, either permanent or temporary.

ENFORCEMENT POLICY ON SIZE AND WEIGHT LIMITS

In addition to the diversity in State laws limiting size and weight, there are also considerable differences in the enforcement policy among the States. In the first place, the number of trucks on the highways in comparison to the number of enforcement officers makes it impossible for the weights of all trucks to be checked at all times.

Even in those States which make use of ports-of-entry or other permanent installations, it is possible for truckers to evade weighing, even though in doing so they may be violating the law by running off the prescribed route. Most States use both permanent and portable scales. The portable scales can be set up anywhere on short notice.

The fact that weight laws are seldom enforced to the letter in every case is certainly not peculiar to this branch of traffic law enforcement. The traffic laws generally are enforced on a spot-check basis. Truck operators and drivers have numerous complaints against the weighing procedure, and even those who are within the limit view the process with some dissatisfaction.

The chief complaint is delay. Weighing at either fixed or portable stations takes some time, especially if there are a number of trucks. The U. S. Bureau of Public Roads has been testing electronic scales, which have recently been developed. These scales make it possible to weigh trucks in motion and should eliminate much of the complaint about delay. The States of Oregon, Iowa, and Virginia are now using such scales on an experimental basis (20).

Truckers also complain that scales are inaccurate or that some problems, such as load shifting and errors in loading, are beyond the drivers' control. Load shifting is the accidental movement of cargo within the truck, in transit. It can cause a violation of the limit on the load per axle. Most truckers load to within about 200 to 500 pounds of the limit in order to allow for some added weight from snow, ice, or mud which accumulates on the truck, or for faulty terminal weighing (32).

Drivers who operate through a given territory frequently acquire a good working knowledge of the weight laws and the degree to which they are likely to be enforced. It is probable that a number of overweight trucks operate without hindrance at any time (28).

A driver whose truck is found to be overweight may be able to rearrange the load so that it will be within the law, if only axle weight is involved. However, if the overload is a violation of gross weight, he may be forced to unload the excess amount. Usually a summons is issued, regardless of whether the load as restowed or reduced is legal. The driver continues on his way, with or without having had to post collateral, and soon afterward, either forfeits the collateral or, if convicted, pays a fine based upon the degree of overload. Because the evidence of violation is the weight as recorded from a scale reading, the usual verdict is *guilty*. In some cases of flagrant or habitual violation, the convicted driver is sentenced to a jail term. Highway and police officials agree that the payment of fines is not an adequate remedy for the overweight problem. Almost always the value of the overweight part of the payload on a single run far exceeds the amount of the fine, and the operator finds it financially sound to pay the fine and make his run overloaded, especially since there is a good chance of escaping entirely.

Some States have considered, and at least one has resorted to, cancellation or suspension of the motor carrier's operating authority for repeat violators. However, the right of a State to take such action against interstate truckers was recently denied by the U. S. Supreme Court. 5/

AXLE-LOAD LIMITATIONS

The load limits which have been cited in the preceding discussion relate both to gross vehicle weight and axle loads. An important factor in highway loading concerns the weight resting on any one axle. In fact, more stress can be inflicted on a highway surface by weight concentrated in one point than by a heavier load well distributed. Most States impose limits on axle weights as well as on the gross weight. Gross vehicle weight constitutes the *ceiling*. For example, if the vehicle in question has multiple axles, each limited by law to 18,000 pounds (a common limit), a 5-axle combination would, so far as concerns the axle weight limits, be allowed to carry 81,000 pounds. (Although 18,000 pounds is allowed on each axle, in practice the front axle is assumed to carry only 9,000 pounds.) If 81,000 pounds exceeded the limit on gross vehicle weight--which it would in almost every State--the vehicle could not legally operate. However, even if it were within the gross vehicle weight limit, and the weight on one axle was over 18,000 pounds, it would also be illegal. The trucker must observe both limits--axle loads and gross vehicle loads.

Table 2 indicates that in the 20 States, as of September 1955, there was not much more uniformity in the axle loads permitted than in the overall limitations. 6/ For loads on single axles, the 18,000-pound and the 22,400-pound limits were fairly common throughout the United States. Of the 20 States, 6 had the 18,000-pound limit and 8 had the 22,400-pound limit.

The tandem axle loads are based upon assumed measurements between the axles; that is, if the axles are closer together than the allowable limit, they are considered to be one axle. The adjustable tandem axle, which can be moved forward and backward, helps to distribute the load in the best possible manner, in order to observe axle limits. For loads on tandem axles, there are 7 States in the area studied which had a limit of 32,000 pounds and 7 which had a limit of 36,000 pounds.

5/ In the case of Illinois Attorney General Castle vs. Hayes Freight Lines (348 U.S. 61), decided December 6, 1954, the operator in question had a record of 157 violations. The State courts had upheld the right of the State to suspend operating rights for intrastate carriers, but had denied the right in the case of interstate carriers. The U. S. Supreme Court sustained this denial.

6/ As with the overall limitations, it must be borne in mind that changes in axle-load limits occur from time to time. Changes were made by Virginia and Kentucky in their truck laws in 1956, as described in footnote 3, page 12. These included Virginia's enactment of a more restrictive load limit for tandem axles than that discussed in the text of this report.

Table 2.--Axle-load limits, 20 States, September 1955

Region and State	Single axle 1/	Tandem axles 1/
	Pounds	Pounds
New England:		
Maine	22,000	32,000
New Hampshire 2/	22,400	36,000
Vermont	NR	NR
Massachusetts	22,400	36,000
Rhode Island	22,400	NS
Connecticut	22,400	36,000
Middle Atlantic:		
New York	22,400	36,000
New Jersey	22,400	32,000
Pennsylvania	22,400	36,000
East North Central:		
Ohio	19,000	31,500
Indiana	18,000	32,000
Illinois	18,000	32,000
Michigan 3/	18,000	4/ 26,000
Wisconsin	5/ 16,000	32,000
South Atlantic: 6/		
Delaware	20,000	36,000
Maryland	22,400	40,000
District of Columbia	22,000	38,000
Virginia	18,000	7/ 32,000
West Virginia	18,000	32,000
East South Central: 6/		
Kentucky	18,000	36,000

1/ Dual wheels on load carrying axles.

2/ Except on 3-axle vehicles.

3/ Depends upon the time of year. A *frost law* imposes a lower weight limit in spring months.

4/ On designated highways, 32,000 pounds on one set of tandem axles in a combination.

5/ 18,000 pounds on designated highways.

6/ This region also includes States not covered by this report.

7/ 36,000 pounds permitted as of September 1955 on heavy duty highways. Tandem axle load-limit changed to a uniform figure of 32,000 pounds, effective July 1, 1956.

NR= No restriction.

NS= Not specified.

EFFECT OF LAWS ON AGRICULTURAL CARRIERS

Figures concerning the operations of agricultural carriers are not abundant, as the greater portion of these carriers are exempt from economic regulations by the Interstate Commerce Commission. However, it is known that a substantial and growing amount of traffic in agricultural products moves by truck. Truck receipts of various commodities in the major markets of the United States show that more than half of products such as milk, eggs, live and dressed poultry, fruits, and vegetables arrives at these markets by truck (24, p. 82; 30, pp. 248, 410, 424).

Furthermore, the length of haul on all these commodities has increased markedly in recent years. This is especially important where back-haul loads are available (22).

For the carrier and the shipper of agricultural commodities, a delay or change in route, resulting from forced unload or a conviction on a charge of excessive loading, can bring results which are acutely bad. The cargo may be highly perishable or one for which the market is likely to change rapidly. Another factor, which is especially adverse insofar as agricultural carriers are concerned, is that they frequently operate over irregular routes. A carrier moving over fixed routes can tailor its equipment to the area laws. The irregular carrier seldom knows where his trip will take him, especially if he depends upon a back-haul. Also, the refrigerated truck is increasingly important in agricultural operations, and this vehicle is especially vulnerable to the weight laws.

SAFETY REQUIREMENTS

In addition to the various State laws concerning weight and size of vehicles, the States also impose regulations relative to safety equipment. Although a substantial number of items are covered, the necessary equipment is fairly standardized and many differences are those of minor detail.

Equipment

Since 1935 the Interstate Commerce Commission has had authority to specify safety equipment for motor carriers in interstate commerce (27).

The many trucks operating solely intrastate are subject to State laws only. For interstate carriers, the Federal laws constitute a minimum standard. The individual States may, and do, either impose requirements over and above those promulgated by the Interstate Commerce Commission, or permit additional safety equipment not demanded by the ICC regulations.

The Commission's regulations and the State regulations cover, in some degree, the following items:

(1) Headlamps
(2) Tail lamps
(3) Stop lamps
(4) Rear reflectors
(5) Clearance lamps
(6) Side marker lamps
(7) Identification lamps
(8) Direction signals
(9) Side reflectors
(10) Rear view mirror
(11) Windshield wiper
(12) Defroster

(13) Fire extinguisher
(14) Liquid-burning flares
(15) Electric flares
(16) Fusees
(17) Red cloth flags
(18) Light on projecting load

In each of the 20 States here studied, State regulations as of March 10,1955 covered all of the above items in one way or another. Although details vary, there was little actual conflict. All items which were required by law in one State were allowed in others. If an operator met the most severe requirements in the area in which he operated, he would automatically be within the law in the other States; that is, if State A required identification lamps and State B did not, State B would not penalize the operator for having them. Also, items 1 through 12 are almost always built into the tractor or trailer by the manufacturer, and it would be unsafe to operate any such vehicle without them. Most of these items are likewise built into the large straight trucks. Items 13 through 18 are those with which the vehicle is more likely to be provided at some time after it has left the factory.

Some items which one State expressly permits may be prohibited by another State, and not mentioned at all in the regulations of a third. For example, some States had no regulation covering spotlights, and other States prohibited them specifically.

An operator who uses his truck on irregular routes might be penalized for having on the truck an item that is permissible in the area in which he usually operates but prohibited in a State into which he goes infrequently. Since many haulers of agricultural products, both common and exempt carriers, run over irregular routes, they may face this problem.

Some State safety regulations go into considerable detail, while others are more general and require that the trucker meet only certain broadly defined standards. By the same token, some States require inspection and approval of equipment, while others prescribe the equipment and assume that the law will be self-enforcing. Checklists of equipment regulations are published in the various trade journals, and truckers have no difficulty in informing themselves as to requirements. In most instances a truck could operate in many States with little hardship so far as concerns safety standards. However, there seems to be no good reason why equipment standards could not be made nationwide.

Table 3 shows the safety equipment required as of March 10, 1955, in the 20 States under consideration.

Enforcement Procedure

The enforcement of safety equipment regulations is similar to that relating to weight and size laws. Most carriers inspect trucks before they leave on a run, making sure that each has all the required items and that lights, brakes, and related items are in working order. The driver reports burned-out lights, poor brakes, and other obvious items to the trucking firm. The police also bring attention to such matters, with or without issuing a summons, depending partly on the character and circumstances of the violation. Some State governments inspect all motor vehicles at regular intervals, and Interstate Commerce Commission inspectors or State Public Service Commission inspectors may inspect a truck at any time. However, this inspection may prove to be infrequent (28). It might be noted in this regard that very commendable work is done in the enforcement of regulations and the general promotion of good operating practices by inspectors employed by insurance companies and trucking companies.

Table 3.--Safety equipment required by Interstate Commerce Commission and 20 States, March 10, 1955 1/

ICC, region, and State	Lamps						Reflectors	
	Head	Tail	Stop	Clearance	Side marker	Identification	Rear	Side
ICC	2 CNS	2R	1/2R/Y	2/4AF-RB	2/4AF-RB	-	2R	2/4AF-RB
New England								
Maine	2W	1R	1R/A	2/3A/GWF-RB	-	-	1R	-
N.H.	2	1R	1	4AF-RB	2AF-RB	-	2R	4AF-RB
Vermont	2W/A	1R	-	1GF-RB	-	-	-	-
Mass.	2Y/A/W	1R	-	2GF-RB	-	-	1R	-
R. I.	2A/W	1R	1Y/R	2/4AF-RB	4AF-RB	-	2R	4AF-RB
Conn.	2W/A/Y	1R	1R	4A/WF-A/R/WB	-	2	1/2A/R/W	4A/WF-W/R/AB
Middle Atlantic								
New York	2Y/W	1R	1R	-	-	-	1/2R	-
New Jersey	2Y/A/W	2R	2R	-	-	-	1/2R	-
Pa.	2	1R	1Y/R	2AF-RB	4AF-RB	3AF-RB	1R	4AF-RB
East North Central								
Ohio.	2W	1R	1Y/R	4AF-RB	4AF-RB	-	2R	4AF-RB
Indiana	2W	1R	1R/Y	2/4AF-RB	2/4AF-RB	-	2R	2/4AF-RB
Illinois.	2Y/A/W	1R	1R/Y	3/6GF-RB	-	3RB	1R	4/AF-RB
Michigan.	2W	1R	1A/R	4AF-RB	4AF-RB	-	2R	2/4AF-RB
Wisconsin	2W	1A/R	1A/R	2/4AF-RB	-	-	1R	4AF-RB
South Atlantic 2/								
Delaware.	2W	1R	1R	4AF-RB	1	-	-	-
Maryland.	2W	1R	1A/R	4AF-RB	4AF-RB	-	1R	-
D. C.	2	1R	1R/Y	4AF-RB	4AF-RB	-	2R	4AF-RB
Virginia.	2W	1R	1R	4AF-RB	-	-	-	-
W. Va.	2	1R	1Y/R	2/4AF-RB	2/4AF-RB	-	2R	4AF-RB
East South Central 2/								
Kentucky.	2W	1R	1Y/R	2/4G/WF-RB	-	-	1	-

See footnotes at end of table.

Key:

W = White
R = Red
G = Green
A = Amber
Y = Yellow
CNS = Color not specified
NP = Not permitted
/ = Or
F = Front
B = Back

Table 3.--Safety equipment required by Interstate Commerce Commission and 20 States, March 10, 1955 1/--Continued

ICC, region, and State	Flares			Direction signals	Defroster	Fire extinguisher	Fusees	Red cloth flags
	Liquid burning	Electrical	Reflectors					
ICC	3	3R	3R	-	1	1/2	3CNS	2
New England								
Maine	3	3R	3R	-	1	1	-	2
N. H.	2	2R	2R	-	1	1	2R	-
Vermont	3	3R	3R	-	-	1	-	2
Mass.	3	3R	3R	-	-	1	-	-
R. I.	3	3R	3R	4Y/AF-Y/AB	1	1	3R	2
Conn.	3	3R	3R	4Y/AF-Y/A/R/WB	1	1	3R	-
Middle Atlantic								
New York	2	2R	2R	4W/AF-R/AB	1	1	-	-
New Jersey	3	3R	3R	4Y/AF-Y/AB	-	1	-	-
Pa.	3	3R	3R	2/4Y/AF-Y/RB	-	1	-	3
East North Central								
Ohio	3	3R	NP	-	-	2	3R	2
Indiana	3	3R	3R	4YF-Y/RB	-	-	3R	2
Illinois	3	3R	3R	AF-Y/RB	-	2	-	3
Michigan	3	3R	3R	4-R/AB	1	1	3R	2
Wisconsin	3	3R	NP	4W/AF-R/AB	-	1	3R	-
South Atlantic 2/								
Delaware	3	3R	3R	4AF-RB	-	-	-	-
Maryland	3	3R	3R	4AF-A/RB	-	2	-	-
D. C.	-	-	-	4W/AF-R/AB	-	1	-	-
Virginia	3	3R	3R	4AF-A/RB	-	1	-	2
W. Va.	3	3R	3R	R/A/YB	1	1	3R	2
East South Central 2/								
Kentucky	3	3R	3R	Y/RB	-	1	3R	-

1/ In addition to the equipment listed in this table, the I.C.C. and all 20 States require windshield wipers, rear view mirrors, and light on projecting load.

2/ This region also includes some States not covered by this report.

Key:

W = White
R = Red
G = Green
A = Amber
Y = Yellow
CNS = Color not specified
NP = Not permitted
/ = Or
F = Front
B = Back

Source: Commercial Car Journal, April 1955.

One large trucking firm has a fleet of especially equipped station wagons carrying first aid equipment, flares, chains, and other emergency equipment. Such vehicles cruise the highways in the area of company operations, checking drivers' performance and equipment and rendering aid to general motorists as well.

Such elaborate services as these can be provided only by large companies, and the small owner-operator may be hard pressed to obey the minimum safety requirements of the State. In the trip-lease hearings referred to previously, many instances were recounted in which, under economic pressure, the owner-operator delayed repairs and equipment acquisition which would have satisfied the law or at least have been conducive to safe practice.

DRIVER STANDARDS

The sections of the Interstate Commerce Act relative to equipment standards previously cited, also give the Commission certain authority as to the physical and mental standards required of drivers. In general, these standards call for full use of limbs, reasonably good hearing and eyesight without color blindness, and freedom from any discernible physical or nervous disorder which would impair driving ability. Drivers must pass an examination every 3 years. At all times when a driver is operating in interstate commerce, he is required to carry a certificate showing that he has satisfactorily passed the standard physical examination, and carriers must require this certificate when hiring drivers. Also, many companies have established their own more stringent physical standards and follow them as well as those required by law. Among the States, the requirements are generally not so strict as the Federal standard; and, most often, the general physical requirements for a driver's or chauffeur's license suffice. The Interstate Commerce Commission also promulgates regulations on the number of hours an employee may stay on duty. The driver's log book (showing hours of duty) and his physical examination certificate are subject to ICC examination at any time.

In general, standards of training and certification of drivers of motortrucks are below those of motorbus drivers, as well as those for locomotive engineers, airplane pilots, and marine engineers and deck officers who also operate in interstate commerce. Officers on ships and commercial airplane pilots hold licenses issued by the Federal Government. Locomotive engineers are not licensed, but they generally attain their jobs after a long period of training. In part, the distinction between standards for truck drivers and for men in more or less comparable jobs with other transport facilities operating in interstate commerce arises from the fact that the trucking industry is much more informally organized than the other industries.

There is no evidence that requirements for drivers or the limits on working hours per man constitute an unreasonable barrier to truck transportation among the States.

TAXES, OLD AND NEW

A tax may be designed as a source of revenue, or as an instrument of policy, or as both. The general property tax illustrates the first. The second is illustrated by the Federal tax on phosphorus matches, which yields no revenue at all, but which put an end to a manufacturing process which Congress deemed too costly in human lives. The Federal estate tax was enacted both as a source of revenue and as an expression of economic policy.

Many a tax is advocated in the name of raising revenue but nevertheless is criticized for the economic effects which, its opponents say, make it worse than other taxes--as witness the debates over general sales taxes. A selective tax can occasion its own particular kind of controversy--narrowly focused but sharp. A sensible selection (or *reasonable classification*) in one man's opinion is rank discrimination in another's. If competition between sectors of the economy is involved, such as the rivalry between trucks and railroads, any tax peculiar to one of the rivals is certain to be a bone of contention.

In this report's estimates of tax loads upon the various vehicles, the same typical vehicles are used as were used to illustrate the effect of weight and size laws.

The Historic Two-Tax System

Motor vehicles have been subject to various taxes through the years. The taxes which applied to them as motor vehicles have generally been of two types, that is, registration fees and fuel taxes. The trucking industry has called these taxes the *two-structure* tax system. The taxes imposed on trucks under the two-structure system were designed to compensate the State for registering and licensing vehicles and providing roads on the same basis as the taxes charged against private motorcars. In general, since registration fees were usually graduated upward progressively in terms of size or weight of vehicle, and also since the truck used considerably more gasoline than the private motorcar, there was a rough correlation between highway use (including intensity of use) and tax paid.

Rise of Third-Structure Taxes

This situation generally prevailed until the end of World War II. At that time States began to take a different view of the tax problem for several reasons.

In the first place, States needed large amounts of revenue to finance highway maintenance and improvements which had been deferred during the war years. The number of vehicles using the highways reached an alltime high after the war, and States found themselves hard pressed to maintain the existing highways, to say nothing of providing new ones.

The trucking industry grew considerably in the immediate postwar years, and the number of large trucks made conditions more difficult. Also, many highway officials and a substantial segment of the general public were concerned about the relationship between large trucks and highway damage. This relationship was especially noticeable after the war, because many of the highways were 20 to 30 years old and were beginning to deteriorate anyway.

Questions arose as to whether truck owners were paying enough taxes to compensate for highway use. Arguments on this score generated considerably more heat than light. Whatever the merits pro or con, the States began a search for more revenue.

It was considered highly desirable to work out a truck-tax system which would correlate truck-tax payments with highway use more directly than the registration fee and the fuel tax.

The result was that several States levied taxes over and above the two-structure system. The trucking industry and some other groups interested in the matter called these *third-structure* taxes. Individually, they are referred to as *ton-mile, weight-distance,* or *axle-mile* taxes. The theory of a ton-mile or weight-distance tax is to establish a formula which takes into account gross vehicle weight multiplied by distance traveled. The axle-mile tax is a rough approximation of the same thing, being based upon the number of axles multiplied by distance traveled.

The declared purpose of such formulas is, of course, to equate highway use with tax revenue and to place an increasing share of costs upon those who operate large heavy vehicles many miles a year.

If registration fees and fuel taxes are considered as first- and second-structure taxes, numerous levies which do not fall into either category might consequently be called third-structure taxes. In many States a *privilege fee,* a *highway compensation fee,* or similar levies are paid by trucks. For example, Michigan's *privilege fee,* applicable to all for-hire trucks, is computed on the basis of the number of miles operated, the rate per mile being graduated by the gross weight of the vehicle. The gross weight figure is not based on any records of freight hauled but is determined by a formula laid down in the tax law and based upon (a) the weight of the vehicle itself and (b) the manufacturer's rated capacity of the vehicle. This looks like a rough-and-ready species of ton-mile tax. But in common parlance a ton-mile tax means one based on actual records of freight hauled, and a third-structure tax means a ton-mile (or other weight-distance) tax or an axle-mile tax. The terminology of *first-, second-,* and *third-structure taxes* is a handy simplification but it does not cover all taxes to which trucks are subject.

In most cases the various fees which are not weight-distance or ton-mile taxes have not been a bar to reciprocity. Also, they have generally involved smaller payments than weight-distance or ton-mile taxes.

Trucking Industry's Objections to Third-Structure Taxes

The trucking industry has been highly critical of these new taxes. The chief arguments which truckers have advanced against the road-use taxes can be briefly summarized as follows:

1. Truckers feel that the present two-structure tax system usually results in equity, and, through minor adjustment, can be made to produce equity among highway users in all States.

2. The relationship between highway damage and vehicle weight is by no means clear.

3. Weight-distance taxes involve too much record keeping on the part of the truck operator.

4. The self-reporting system leads to understatement, which penalizes the honest operator and sets a premium on dishonesty.

5. The cost of collection is so high that the net revenue is not high enough to justify the tax.

6. The ton-mile tax is not a true measure of highway use, since axle loads, not gross loads, are the most important index of the vehicle's effect on the road.

7. Truckers are much concerned with the effects upon reciprocity which have resulted from the imposition of such taxes without reciprocity provisions.

The position of the trucking industry becomes more clearly defined when we examine these objections in detail. It should be borne in mind that *the trucking industry* includes not only for-hire truckers but also manufacturing and distributing firms which haul commodities which they themselves produce, process, or distribute. Moreover, for each major policy view taken by the trucking industry, supporters are found among shipper groups that use for-hire motor carriers extensively.

As regards point 1 mentioned previously, truckers claim that the registration fees and fuel taxes which they pay are high enough to cover their full share of highway costs.

They also claim that the search for additional revenue from highway users has turned toward increased truck taxes because the truckers are easy to reach and the additional taxing of private motorcar owners would be politically unpopular.

Insofar as highway damage is concerned, truckers argue that weather and time are the major factors in highway deterioration and that heavy trucks do not do much damage. The arguments on both sides of this question are thus far almost impossible to evaluate conclusively. Although one road test under controlled conditions has been made and another is under way, little definitive information has been forthcoming. The whole question is highly technical and is complicated by many qualifications. Both proponents and opponents of the trucking industry have quoted the results of the Maryland test as being in their favor. It is not likely that this question will be resolved in the near future (16).

Truck operators maintain that, since the administration of the tax requires that ton-mileage of each truck in the taxing State be reported (or, for the axle-mile tax, the mileage and type of vehicle), the record-keeping operation is substantial. Members of the Motor Carrier Association of New York have claimed that the costs of keeping records is greater than the tax itself (3, p. 4).

The record-keeping burden probably falls heavily on the small truck operator who may not have any accounting staff. The casual for-hire hauler of agricultural products is typical of this situation. He seldom has any established record-keeping staff and may not even consider himself to be part of the trucking industry for most purposes.

This objection is closely related to the self-reporting aspects of the tax, which in turn bear upon the costs of policing and collection. In any self-reporting system there is always considerable temptation to understate tax liability. Under the most favorable circumstances the tax authorities could check only a small percentage of the total returns, and the operator who fails to report some portion of this mileage has a good chance of evading part of the tax. This is not a problem peculiar to the ton-mile tax.

There can be little question that any intensive program designed to close the loopholes in the tax would involve substantial costs. Any system of checking records of truck operations could hope to reach only a small part of the total carriers. While ports of entry are

expensive to maintain and are burdensome to truck traffic moving across State lines, their use is defended by some authorities as being a practical means of enforcement (29). In comparison with the small cost of collecting revenue from registration fees and fuel taxes, the weight-distance tax is doubtless costly to collect. The National Highway Users Conference reported that the cost of collecting all the *third-structure* taxes in force in 1949 amounted to an average of 19.35 percent of the total revenue collected. In one State, so the N. H. U. C. declared, the cost of collection over a 13-year period ranged from a low figure of 27.3 percent to a high of 100 percent, the latter figure prevailing in 5 of the 13 years (17). In the State of Oregon a much better record exists for the weight-mile tax, which is reported to have collection costs of approximately 4½ percent for the past several years (12).

Perhaps more administrative experience will reduce these costs in the future. At least one State now imposing a weight-distance tax has declared that the tax is a good producer of net revenue (7, p. 11).

Point 6, mentioned previously, is hardly an argument against a weight-distance tax, although it may be a good reason for changing the formula of computation. The tax could be proportionate to ton-mileage, qualified by a factor reflecting the average tonnage per axle during the tax period--ascertaining this factor would mean still more headaches for the motor carrier.

As for reciprocity, the usual position of States with third-structure taxes, is that reciprocity should not be applied to them. That is, any State with such a tax should collect it from out-of-State truckers on their operations in that State, regardless of whether there be a reciprocity agreement between the State having the third-structure tax and the State in which the trucker has registered his truck. The out-of-State trucker disagrees vigorously with this opinion. This complex issue is discussed in a later section of this study.

In regard to the whole motortruck tax situation, the American Trucking Associations, Inc., has set forth its position in a 9-point program. In the organization's own words, its recommendations are as follows (8):

1. It is the position of the industry that highway use taxes should be limited to registration fees and fuel taxes, and that such taxes can be and should be equitably distributed among the States.

2. Any vehicle on which a license fee is paid to a State entitled to the revenue should have the right to operate in any other State without the payment of any additional highway use fees or taxes of any kind except fuel taxes.

3. We desire that each State shall receive its equitable proportion of fuel taxes paid by operators of trucks and that the equitable portion to be allocated shall be computed on the basis of miles operated in the State as compared to total miles operated; that fraction to be applied to total fuel used in propelling vehicles on the highway.

4. The level of taxes to be paid by users of highways to be left to self determination by each State, except where such level of taxation becomes an undue burden upon the free flow of interstate and foreign commerce, in which case the American trucking industry reserves the right to request review, investigation, and possible action by the United States Congress.

5. The tax program shall encourage the free flow of interstate and foreign commerce, guaranteeing maximum compliance with minimum administrative cost.

6. That motor carrier operations conducted wholly or partially in interstate and foreign commerce shall be considered to be unduly burdened should they be required to pay proportionately more taxes and fees for highway usage than are assessed by the State against similar or like intrastate operations.

7. That uniformity in the method of application of highway user taxes is highly desirable and should be an industry objective, but that appropriate State action to insure alternate applications to meet the needs of a variety of operations should be permitted.

8. That the application by the States of fees and taxes under formulas which produce a result of taxing more than 100 percent of a carrier's property, income, or operations, is considered to be an undue burden on interstate and foreign commerce in the aggregate, and must be avoided.

9. That the amount of tax or fee paid as a prerequisite to the licensing of any vehicle shall, in cases of combination of vehicles, apply on the power unit in all except a minimum amount to cover the cost of identification of the trailer or trailers.

The State View

States which have enacted ton-mile taxes defend them on several grounds. A truck may travel thousands of miles outside the State in which it is registered or in which the company headquarters are located. A *bridge* State--one across which a truck travels in moving between two other States with interstate cargo--may find that trucks of *foreign* registry far outnumber the local trucks passing over its highways. This is especially true of a small bridge State. States tried to remedy this situation by requiring certain fuel purchases, or fuel tax payments in lieu of such purchases. Increased revenue from this source was limited by the fact that general increases in fuel taxes were not popular because these levies fell upon all users of the highway including the private motorist. The same situation was true as regards registration fees, and also, this did not help the *bridge* States. 7/

The Third-Structure Tax and Reciprocity

As related previously, registration fees have, from early years, been subject to reciprocity either on a formal or an informal basis. Consequently, trucks, like private

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7/ To promote good relations through some equalization of revenues among States, some large fleet owners register their trucks on a prorata basis depending upon the mileage operated in the various States in which they normally operate. One-tenth of the fleet is registered in a State which accounts for one-tenth of the whole fleet's mileage. Other companies register all trucks in one State, on the basis of low fees, or where headquarters or shops are located. The latter carriers depend upon reciprocity for operating privileges in other States.

automobiles, were free to move from State to State, having been registered in one State and recognized by another. Fuel taxes were generally paid when and where fuel was purchased or were prorated on a mileage basis. As noted above, the weight-distance tax has not generally been subject to reciprocity. Whereas all States imposed registration fees and fuel taxes, only a few States imposed weight-distance taxes. Since the purpose of the third-structure tax was to tap new sources of revenue, the States were not willing to see interstate traffic exempted. The imposition of the ton-mile taxes without reciprocity provisions brought immediate repercussions from other States. The whole question of reciprocity was somewhat obscure. Most reciprocity agreements were informal in nature. State statutes authorized a State official or a board of officials to enter into reciprocal agreements at discretion. The decision to omit third-structure taxes from reciprocity was thus a matter of executive decision rather than of legislation.

Reciprocity may involve a high registration fee in one State and a low registration fee in another State, with the two States mutually honoring each other's registrations. It is therefore perfectly conceivable that a State with a third-structure tax would exempt from that tax, as well as from the registration fee, any truck entering from a State which has no third-structure tax but which honors truck registrations of the first State.

Instead, Ohio and New York--the only States with third-structure taxes among the 20 States here studied--have treated the axle-mile or ton-mile tax in the same way, so far as reciprocity is concerned, as they have treated their taxes on motor fuel bought in the State: The out-of-State truck pays on the same basis as the domestic truck, regardless of reciprocity. Throughout the country, most of the States with third-structure taxes regard this as appropriate, since the out-of-State truck, like the domestic one, pays the third-structure tax only on its operations within that State.

In addition to the fact that the States refused to apply reciprocity to the third-structure taxes, the imposition of such taxes put a strain on interstate relations for other reasons. To enforce the tax statute, the State often set up ports-of-entry or other inspection stations. Such acts were often looked upon with some hostility by surrounding States.

The immediate reaction to the withholding of reciprocity from third-structure taxes was for adjoining States to suspend or cancel reciprocity agreements in regard to registration fees. To further complicate the problem, many reciprocity agreements were on a multilateral basis, similar to many international trade agreements. State B's cancellation of agreement between States A and B might automatically cancel agreements which State A had with States C, D, and E, which were also parties to the agreement with State B. An example of this occurred when the State of Ohio enacted weight-distance tax without reciprocity. The parties to the *all South* reciprocity agreement, which included 10 Southern States, voted to break with Ohio (4, p. 18).

Trucking firms based in a State with which reciprocity had been ended, would face the problem of having to register their trucks in all the States in which they operate which had formerly been parties to reciprocity. To escape this, many truckers threatened to move out of the States which were involved in reciprocity difficulties. This action would not relieve the trucker from paying the weight-distance tax, but by shifting his headquarters to a State which still had valid reciprocal agreements, he would continue to have the benefits of reciprocity in registration, among the remaining States in the interstate agreement. There is no evidence at hand that such relocating has been done on a substantial scale.

The weight-distance tax also has disturbed amicable relations among States which form a geographic trade area. By imposing a weight-distance tax, the State of New York incurred the ill will of all the New England States. They maintained that the cost of trucking into New England was increased, as New York lies athwart all highway routes between New England and the rest of the United States.

Similarly, Ohio is on the route which is geographically most convenient for truck traffic from the Midwest to the Northeast. Truck operators based in States without third-structure taxes have generally been somewhat cautious as to the action which they recommended in regard to reciprocity. They are not quick to urge retaliation against the State which has a third-structure tax. Although they were not pleased with the ton-mile tax, the problems incident to a breakdown in reciprocity were even more unpleasant to contemplate. The reciprocity breakdown which has already occurred is serious enough. One of the more alarming features of the situation is the fact that the crisis has arisen during a period of relative prosperity.

Economic relations among the States are under a special strain during depressed periods. The truck operators hold the view that, if reciprocity can break down now, it would indeed be a sorry plight in the event of a depression. Any recurrence of interstate economic warfare similar to that of the 1930's, recounted earlier, would be most unwelcome to them and to shippers.

Trucking has become much more interstate in nature than it was two decades ago, and any economic warfare between the States would have more serious consequences than it had at that time.

Serious concern in Congress regarding third-structure taxes and their impact on interstate trade was shown by H. Res. 407, introduced in August 1954. This bill, introduced by Representative Ayers of Ohio, would have directed the House Committee on Interstate and Foreign Commerce to study the whole reciprocity problem. Congress adjourned without having acted on the bill, but the Committee carried out the bill's purposes by having its staff make a study to provide background information on the current highway tax problem and reciprocity situation and on regulations limiting vehicle movement, along with the views of interested groups regarding these matters. The distinctive feature of the report is the presentation of those views.

It is not easy to see how any solution to the reciprocity problem, per se, can give much comfort to the truckers. The most likely situation which would cause the States to include the weight-distance tax in reciprocity agreements would be for all States to adopt a weight-distance tax. This hardly seems to be a solution which would appeal to the trucking industry. No doubt, the solution which is most attractive to the truckers would be the outright repeal of the weight-distance taxes. This does not seem likely, unless States discover that the net receipts do not justify the tax.

In New York, the weight-distance tax became an issue in the 1954 State elections, and both parties pledged a thorough study of the problem (6, p. 19). Two other States, Oregon and Ohio, have both encountered strong opinion on both sides of the weight-distance tax issue.

There does not appear to be much prospect that the States will abandon their search for new revenue sources, and some long-term solution to the problem of allocating costs must obviously be found. Highways can be expected to wear out in use. They can also be expected to become obsolete. Many of our important highways are now 25 or 30 years old and cannot be expected to carry present-day traffic efficiently, any more than 25-year old trucks could be expected to perform as efficiently as modern trucks. Truck movement is also hampered by taxes imposed by the various States and by the nonuniformity of the taxes.

The following section is designed to illustrate the influence of tax loads on truck movement.

ESTIMATION OF TAX LOADS

In calculating the estimated tax loads as of September 15, 1955, we again refer to the typical vehicles which were referred to above, viz., the 3-axle, tractor semitrailer combination; the 4-axle, tractor, tandem semitrailer combination; and the 5-axle, tandem tractor, tandem semitrailer combination. As indicated previously, in most of the 20 States, the 5-axle combination could not operate fully loaded. (See fig. 3 and table 1.) Consequently, the cost of operating the truck, insofar as fuel taxes and registration fees are concerned, is limited to those States in which it could be economically operated.

Registration Fees

In calculating registration fees, the assumption is made that the vehicles were registering for the first time to operate interstate. Consequently, there are some nonrecurrent fees for certificates or other items that appear in the totals which would not have to be paid after the vehicle has once been registered.

Within the 20-State area, registration methods varied somewhat. In most of these States, gross vehicle weight was the basis for registration. The District of Columbia, Ohio, and Michigan used empty weight, while Maryland and Pennsylvania used chassis weight. West Virginia, alone, used manufacturers' rated capacity. Some States distinguished between common and contract carriers in registering vehicles and setting fees. Some registered a truck and trailer as two vehicles, while others considered a combination as a single vehicle.

Fuel Taxes

Taxes on both gasoline and diesel fuel were levied by all of the States concerned. Some State statutes distinguished between the two fuels, but the net amount of the tax seldom differed between the two. In this report's calculation of the tax, the assumption is made that operators are buying all their fuel in the State in which their vehicles are registered.

The figures for mileage and fuel consumption are taken from the U. S. Bureau of Public Roads study referred to in footnote 2. The mileage figures may be slightly high for agricultural carriers, some of which operate on a seasonal basis. Also, the revenue-ton-miles

figure may be high since considerable nonrevenue mileage is driven by these carriers when the trucker is unable to obtain back-haul loads.

Property Taxes

Relatively few States impose property taxes on motor vehicles. However, if such taxes are levied, they constitute part of the tax load, especially since the absence of a property tax on vehicles is often compensated for by an increased registration fee. This practice is so common that the distinction between registration fees and property taxes has become a slender one from the taxpayer's standpoint. Nevertheless, this report classifies the two levies according to the terminology of the respective States.

Third-Structure Taxes

For purposes of this study, third-structure taxes are those which are based on mileage traveled, and do not include registration fees or fuel taxes. From time to time, various taxes have been imposed on vehicles. Most of these taxes have been minor in net amount or have been subject to reciprocity. The most important third-structure tax now in force is the weight-distance tax. Third-structure taxes are substantial in amount and, as recounted previously, they are seldom subject to reciprocity; in fact, Ohio and New York do not allow reciprocity on them. In estimating these taxes the assumption is made that all mileage is run in the State in which the vehicle is registered. For interstate carriers, this assumption may result in a considerable overstatement or understatement of the tax load. In order to estimate the tax liability of an interstate carrier, it would be necessary to know the mileage the carrier operates each year in all those States with weight-distance taxes and, also, the weight of each of its trucks moving in those areas.

Other Taxes

Some States impose taxes on *foreign* corporations for the privilege of doing business within the State. Such taxes are usually based upon either net or gross income earned in the State during the year. In order to estimate the load of such a tax, it would be necessary to know the net income of the out-of-State trucking corporations doing business in that State. Consequently, these taxes are noted where they exist, but no attempt is made to calculate them.

Total Estimated Tax Loads

The total estimated tax loads for the typical trucks in the 20 States, as of September 15, 1955, are shown in table 4. The range of tax loads was great among the various trucks and for trucks of the same type.

For the 3-axle combination, total taxes ranged from $521 per year in New Jersey to $1,379.68 in Virginia. For the 4-axle combination the low was $931 in New Jersey, and the high was $2,653.98 in Virginia. For the 5-axle combination, taxes ranged from $1,041.84 in New Jersey to $3,269.26 in New York.

Table 4.--Estimated tax load, typical vehicles

	Region and State	3-axle combination 40,000 pounds gross weight						4-axle 50,000 pounds		
		Registration 1/	Fuel	Property	Road use	Other	Total	Registration 1/	Fuel	Property
		Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
	New England:									
1	Maine	310.00	560.00	151.28	0	2/ 25.00	1,046.28	360.00	1,137.50	192.38
2	N. H.	240.00	400.00	94.52	0	2/ 2.00	736.52	300.00	812.50	118.91
3	Vt.	435.00	440.00	0	0	0	875.00	590.00	893.75	0
4	Mass.	127.00	400.00	210.04	0	2/ 10.00	747.04	157.00	812.50	264.24
5	R. I.	129.00	320.00	247.00	0	2/ 15.00	711.00	150.00	650.00	310.00
6	Conn.	205.00	480.00	240.29	0	2/ 15.00	940.29	255.00	975.00	302.29
	Middle Atlantic:									
7	N. Y.	243.00	320.00	0	500.00	3/ 15.00	1,078.00	293.00	650.00	0
8	N. J.	200.00	320.00	0	0	4/ 1.00	521.00	280.00	650.00	0
9	Pa.	195.00	480.00	0	0	5/ 194.00	869.00	325.00	975.00	0
	East North Central:									
10	Ohio	452.06	400.00	0	400.00	6/ 30.00	1,282.06	490.70	812.50	0
11	Ind.	227.00	320.00	371.32	7/230.00	2/ 49.00	1,197.32	277.00	650.00	366.69
12	Ill.	640.00	400.00	78.75	0	0	1,118.75	789.00	812.50	84.69
13	Mich.	281.75	480.00	0	80.00	8/ 20.00	861.75	306.25	975.00	0
14	Wis.	485.00	480.00	0	0	2/ 60.00	1,025.00	620.00	975.00	0
	South Atlantic 9/:									
15	Del.	173.00	400.00	0	0	0	573.00	219.00	812.50	0
16	Md.	540.00	480.00	0	0	0	1,020.00	460.00	975.00	0
17	D. C.	115.00	480.00	145.90	0	0	740.90	130.00	975.00	185.40
18	Va.	226.00	480.00	141.68	460.00	10/ 72.00	1,379.68	332.00	975.00	177.98
19	W. Va.	304.00	480.00	262.55	0	11/	1,046.55	397.00	975.00	330.30
	East South Central 9/ :									
20	Ky.	150.00	560.00	211.62	0	12/ 325.00	1,246.62			

1/ If a combination of the above type and weight has a refrigerated trailer, the registration fee is increased by the following amounts: Ohio $110.80; Michigan $84.25; District of Columbia $50. In Maryland, the additional weight of refrigeration equipment would involve no extra registration fee for a combination of the above type and weight, since there is a flat rate for trailers with chassis shipping weight of 6,000 pounds or more. In 6 States (New York, New Jersey, Indiana, Wisconsin, Delaware, and West Virginia) the registration fee is based on the State's estimate of the usual gross weight of the particular make and type of vehicle. For 2 vehicles thus estimated to have equal gross weight, the registration fee is equal, regardless of whether the trailer is refrigerated or unrefrigerated. The fee would therefore be heavier, per ton of payload, for the refrigerated vehicle.

2/ Operating authority fee.

3/ Fee for certificate of convenience and necessity.

4/ Paid to fund for unsatisfied judgments.

in 20 States, September 15, 1955

combination gross weight			5-axle combination 64,000 pounds gross weight						
Road use	Other	Total	Registration 1/	Fuel	Property	Road use	Other	Total	
Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
0	2/ 25.00	1,714.88						NP	1
0	2/ 2.00	1,233.41						NP	2
0	0	1,483.75						NP	3
0	2/ 10.00	1,243.74						NP	4
0	2/ 15.00	1,125.00						NP	5
0	2/ 15.00	1,547.29						NP	6
1,105.00	3/ 15.00	2,063.00	393.00	1,021.26	0	1,840.00	3/ 15.00	3,269.26	7
0	4/ 1.00	931.00	360.00	680.84	0	0	4/ 1.00	1,041.84	8
0	5/426.00	1,726.00						NP	9
975.00	6/ 30.00	2,308.20	778.45	851.05	0	1,600.00	6/ 30.00	3,259.50	10
7/ 520.00	2/ 49.00	1,862.69	277.00	680.84	777.33	7/780.00	2/ 49.00	2,564.17	11
0	0	1,686.19	1,139.00	851.05	0	0	0	1,990.05	12
130.00	8/ 20.00	1,431.25	481.75	1,021.26	0	160.00	8/ 20.00	1,683.01	13
0	2/ 60.00	1,655.00	815.00	1,021.26	0	0	2/ 60.00	1,896.26	14
0	0	1,031.50	265.00	851.05	0	0	0	1,116.05	15
0	0	1,435.00	700.00	1,021.26	0	0	0	1,721.26	16
0	0	1,290.40	215.00	1,021.26	314.10	0	0	1,550.36	17
1,040.00	10/129.00	2,653.98						NP	18
0	11/	1,702.30	484.00	1,021.26	400.30	0	11/	1,905.56	19
		NP						NP	20

5/ Operating authority fee of $10, and excise tax of 0.8 cent per dollar of gross receipts from business done in Pennsylvania.

6/ Annual capacity fee.

7/ Tax of 1 percent of gross receipts from business done in Indiana.

8/ Certificate application fee.

9/ This region also includes other States, not covered by this study.

10/ Operating authority fee and appraisal and valuation tax.

11/ Privilege tax of $1.755 per $100 of gross income from all intrastate business if trucker is an interstate operator.

12/ Excise tax and operating authority fee.

Key: NP means that the gross weight shown is not permitted in this State.

Prepared on the basis of data in National Highway Users Conference, *Registration Fees and Special Taxes for Motor Vehicles* (18); and U. S. Bureau of Public Roads, *Public Roads* (25).

In Ohio, about one-third of the total tax was accounted for by the axle-mile tax. In New York, about one-half of the total tax liability was the result of the weight-distance tax in that State. It is obvious that a trucker operating into these States would have saved a considerable amount if the tax had been subject to reciprocity.

If a complete breakdown had occurred and the trucker had been forced to register his vehicle in all of the 20 States and pay their fees, the 3-axle combination would have cost $5,677.81 in registration fees alone. It is not likely that an operator would have registered a truck in all 20 States and paid the fees, but it is illustrative of what even a partial breakdown in reciprocity could have done to trucking costs.

CONCLUSIONS

There can be no question that the barriers to truck operation in the form of size and weight limits and tax loads limit the scope of truck operation. Any factor which acts to limit the efficiency of any form of transport must be given serious consideration. To the extent that the primary result of the barriers is to hinder the movement of goods, they cannot be defended on economic grounds. However, the existing size and weight laws and the taxes imposed upon truck movement cannot be so considered except, perhaps, in isolated instances.

By and large, States have recognized the economic significance of the trucking industry and have made serious efforts to avoid undue restriction on trucking while at the same time attempting to protect their highways and assign the costs of highway use on an equitable basis. Doubtless, few State officials would maintain that the present system of truck regulation is the most efficient which could be devised.

In large measure, the process of truck regulation and taxation is in the experimental stage. Interstate trucking is still a relatively young industry. Consequently, the current discussion relative to regulation and taxation of trucks is indicative of the need for a cooperative solution to the problem. States must recognize the true interstate character of the modern trucking industry. If the industry is to provide adequate transportation service, it cannot be bound by an antiquated or inefficient regulatory process. At the same time, the trucking industry must recognize the fact that it has become a mature and essential part of the transport system. It must be ready to cooperate with public officials in any attempt to discover a fair and equitable system of truck regulation and taxation. As its contribution to this end, the organized industry has put forth the 9-point policy statement, on the tax problem, quoted above.

The problem stemming from diverse action by the respective States is considerably more baffling as regards taxation than as regards size and weight limits. However, even in the regulation of size and weight, a shift from State to Federal control of interstate trucking would not solve the interstate trucker's problem of diverse State action. Assume for the moment that Federal size and weight limits would be set up for interstate trucking and that this transportation service would be freed from State size and weight limits. It would still be true that many a motor carrier who used his truck intrastate this week would use it interstate next week--and would thus have to meet a new set of requirements (the Federal standards) without getting away from a whole series of State standards.

In a subsequent report, based on field studies to be done with the cooperation of shipper and carrier groups and of State officials, an effort will be made to obtain answers to questions which the present report can only raise. Have either size and weight limits or third-structure taxes brought any significant reductions in trucking service available for farm commodities, or any significant increase in the rates charged for it? If so, how? Where the trucking service available has recently become more limited or higher priced, to what extent, if any, does this occurrence stem from State barriers to highway transportation and to what extent are there other important causes? Here we have the economist's usual task of the unraveling of multiple causation and giving, as best he may, an appraisal of the relative importance of a particular factor. Still another question is, do the departures from reciprocity seem likely to become so widespread as to be a real threat to an efficient system of agricultural marketing, or are they of only limited practical consequences?

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